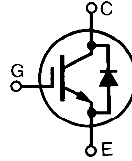
IXYS

High Voltage, High Gain BIMOSFET™ Monolithic Bipolar MOS Transistor

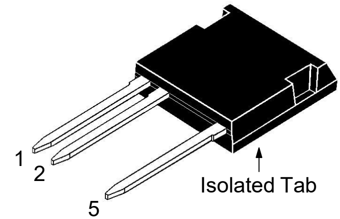
IXBF14N300

V_{CES} = 3000V
I_{C90} = 14A
$V_{CE(sat)}$ ≤ 2.7V



(Electrically Isolated Tab)

ISOPLUS i4-Pak™



1 = Gate
2 = Emitter
5 = Collector

Symbol	Test Conditions	Maximum Ratings	
V_{CES}	T_J = 25°C to 150°C	3000	V
V_{CGR}	T_J = 25°C to 150°C, R_{GE} = 1MΩ	3000	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	T_C = 25°C	28	A
I_{C90}	T_C = 90°C	14	A
I_{CM}	T_C = 25°C, 1ms	98	A
SSOA (RBSOA)	V_{GE} = 15V, T_{VJ} = 125°C, R_G = 20Ω Clamped Inductive Load	I_{CM} = 120 V_{CE} ≤ 1500	A V
t_{SC} **(SCSOA)**	V_{GE} = 15V, T_J = 125°C, R_G = 82Ω, V_{CE} = 1500V, Non-Repetitive	10	µs
P_C	T_C = 25°C	120	W
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
T_L	Maximum Lead Temperature for Soldering 1.6 mm (0.062 in.) from Case for 10s	300	°C
F_C	Mounting Force	20..120 / 4.5..27	N/lb.
V_{ISOL}	50/60Hz, 5 Seconds	4000	V~
Weight		5	g

Symbol	Test Conditions (T_J = 25°C Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
BV_{CES}	I_C = 250µA, V_{GE} = 0V	3000			V
$V_{GE(th)}$	I_C = 250µA, V_{CE} = V_{GE}	3.0		5.0	V
I_{CES}	V_{CE} = V_{CES}, V_{GE} = 0V			25	µA
	Note 2, T_J = 125°C			1	mA
I_{GES}	V_{CE} = 0V, V_{GE} = ± 20V			±100	nA
$V_{CE(sat)}$	I_C = 14A, V_{GE} = 15V, Note 1		2.2	2.7	V
	T_J = 125°C		2.7		V

Features

- Silicon Chip on Direct-Copper Bond (DCB) Substrate
- Isolated Mounting Surface
- 4000V~ Electrical Isolation
- High Blocking Voltage
- High Peak Current Capability
- Low Saturation Voltage

Advantages

- Low Gate Drive Requirement
- High Power Density

Applications

- Switch-Mode and Resonant-Mode Power Supplies
- Uninterruptible Power Supplies (UPS)
- Laser Generators
- Capacitor Discharge Circuits
- AC Switches

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Symbol	Test Conditions (T_J = 25°C Unless Otherwise Specified)	Min.	Typ.	Max.	
g_{fS}	I_C = 14A, V_{CE} = 10V, Note 1	8	13		S
C_{ies}	V_{CE} = 25V, V_{GE} = 0V, f = 1MHz		1275		pF
C_{oes}			50		pF
C_{res}			18		pF
Q_g	I_C = 14A, V_{GE} = 15V, V_{CE} = 1500V		62		nC
Q_{ge}			7		nC
Q_{gc}			30		nC
$t_{d(on)}$	**Resistive Switching Times, T_J = 25°C** I_C = 14A, V_{GE} = 15V V_{CE} = 960V, R_G = 20Ω		40		ns
t_r			380		ns
$t_{d(off)}$			166		ns
t_f			1900		ns
$t_{d(on)}$	**Resistive Switching Times, T_J = 125°C** I_C = 14A, V_{GE} = 15V V_{CE} = 960V, R_G = 20Ω		64		ns
t_r			746		ns
$t_{d(off)}$			180		ns
t_f			1730		ns
R_{thJC}				1.04	°C/W
R_{thCS}			0.15		°C/W

Reverse Diode

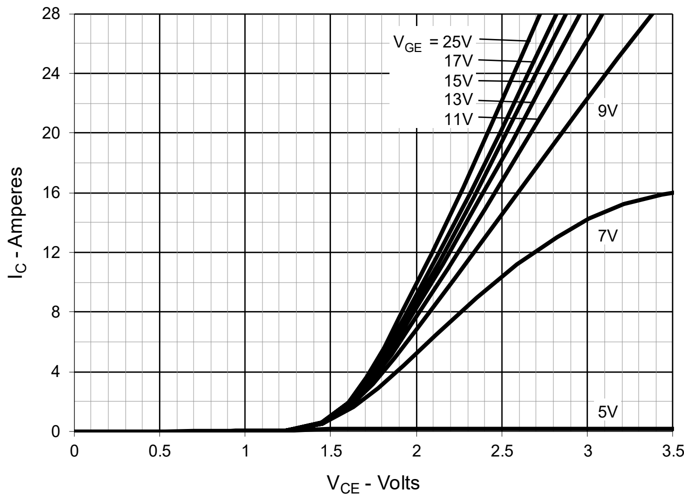
Symbol	Test Conditions (T_J = 25°C Unless Otherwise Specified)	Min.	Typ.	Max	
V_F	I_F = 14A, V_{GE} = 0V, Note 1			2.7	V
t_{rr}	I_F = 7A, V_{GE} = 0V, -di_F/dt = 100A/μs V_R = 100V, V_{GE} = 0V		1.4		μs
I_{RM}			23		A
Q_{RM}			16		μC

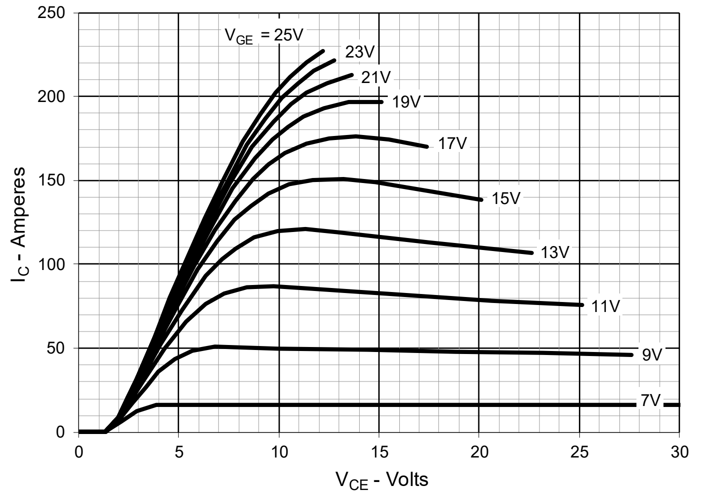
Notes:

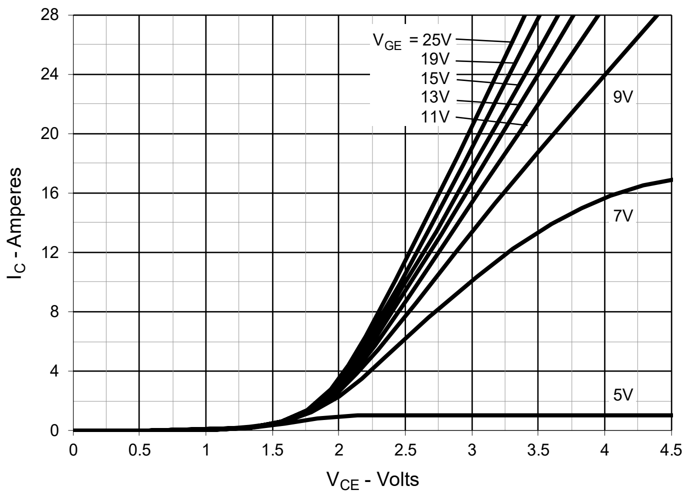
1. Pulse test, t ≤ 300μs, duty cycle, d ≤ 2%.
2. Device must be heatsunk for high-temperature leakage current measurements to avoid thermal runaway.

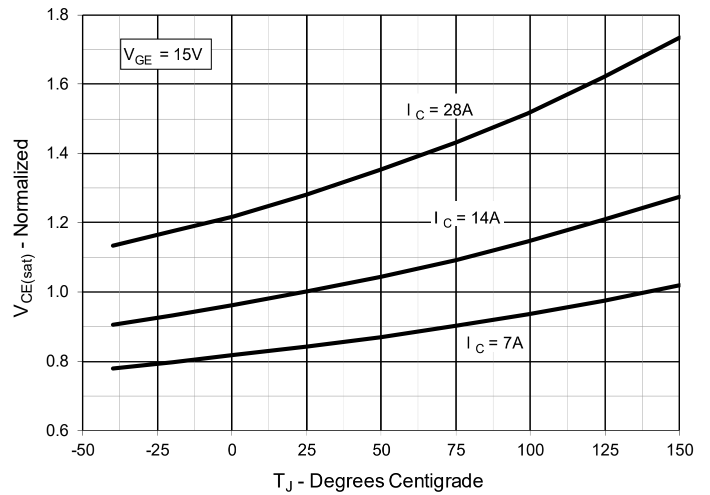
Littelfuse reserves the right to change limits, test conditions and dimensions.

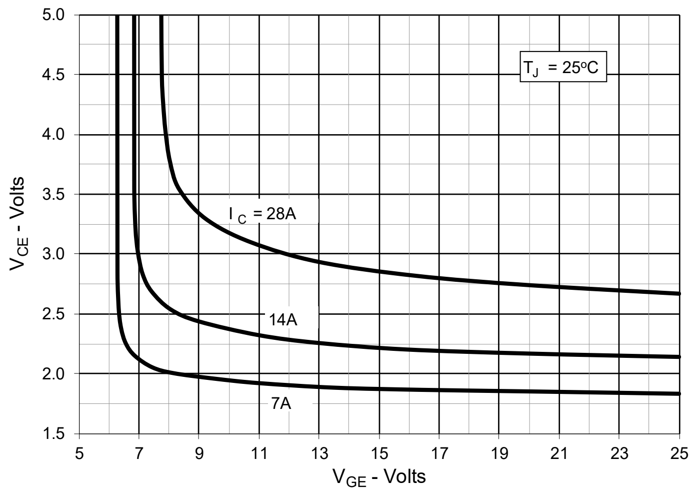
IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents: 4,835,592 4,931,844 5,049,961 5,237,481 6,162,665 6,404,065 B1 6,683,344 6,727,585 7,005,734 B2 7,157,338B2 4,860,072 5,017,508 5,063,307 5,381,025 6,259,123 B1 6,534,343 6,710,405 B2 6,759,692 7,063,975 B2 4,881,106 5,034,796 5,187,117 5,486,715 6,306,728 B1 6,583,505 6,710,463 6,771,478 B2 7,071,537

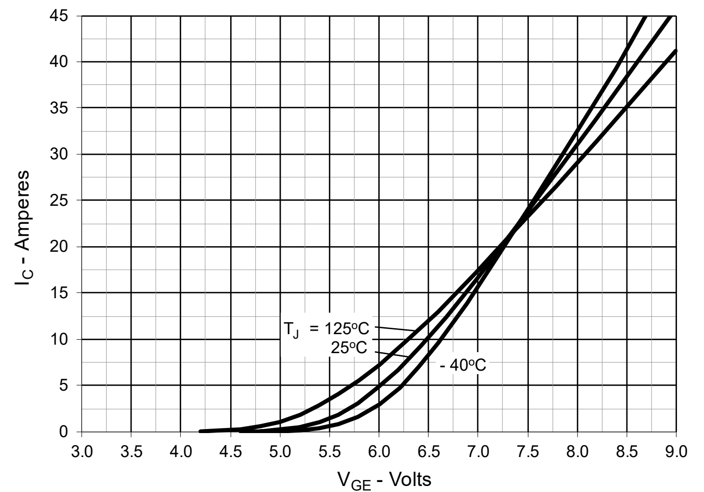












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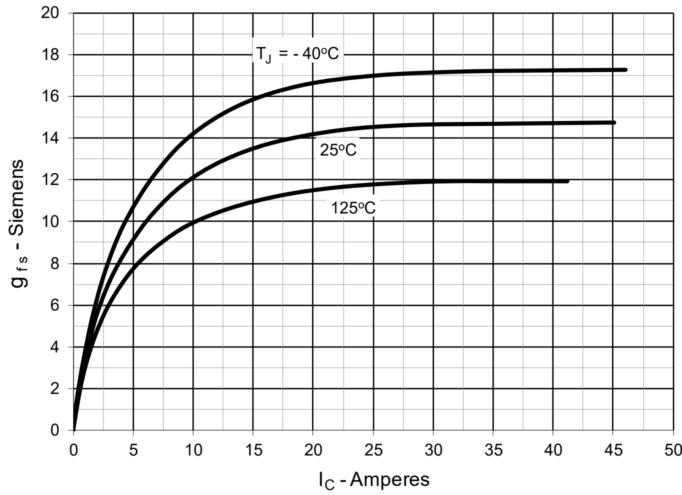

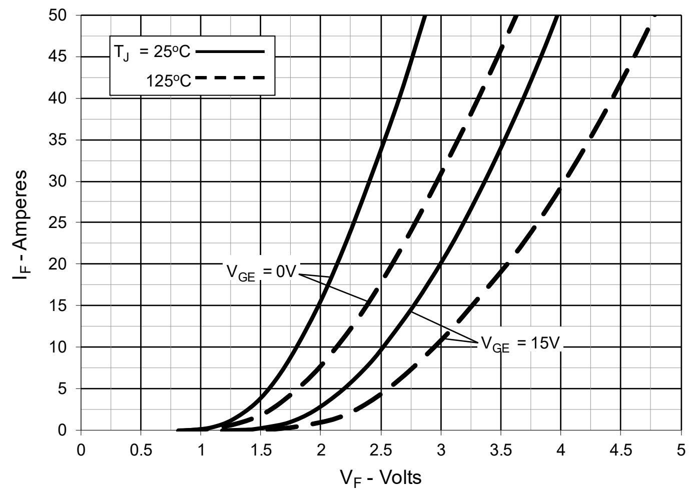

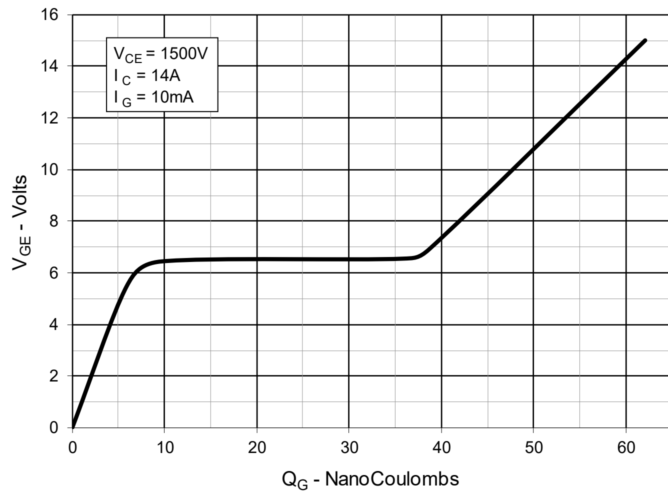

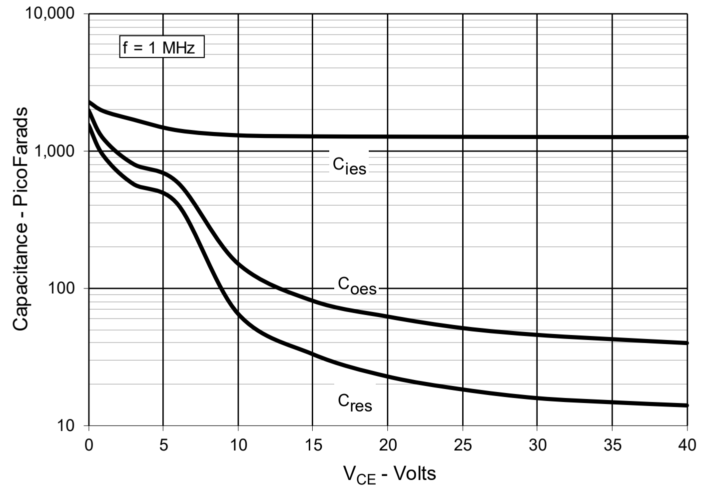

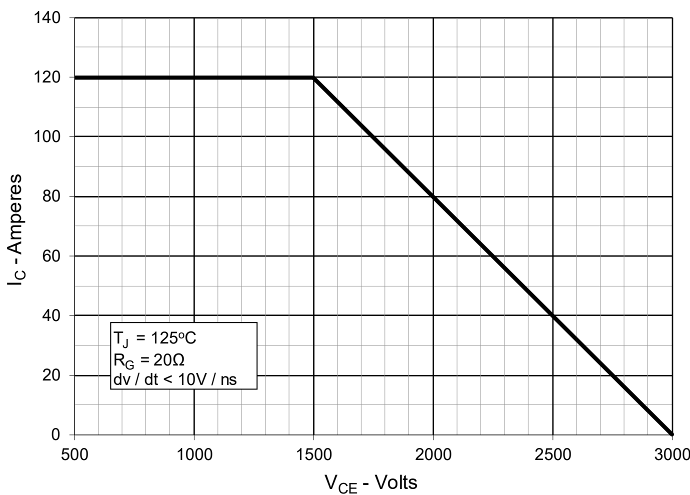

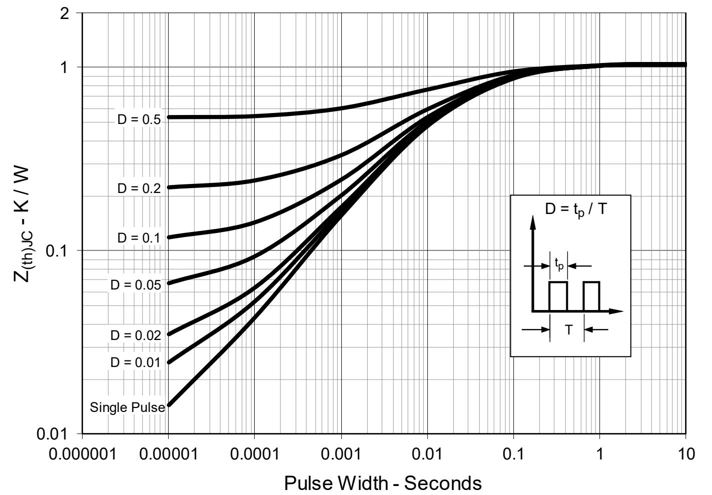

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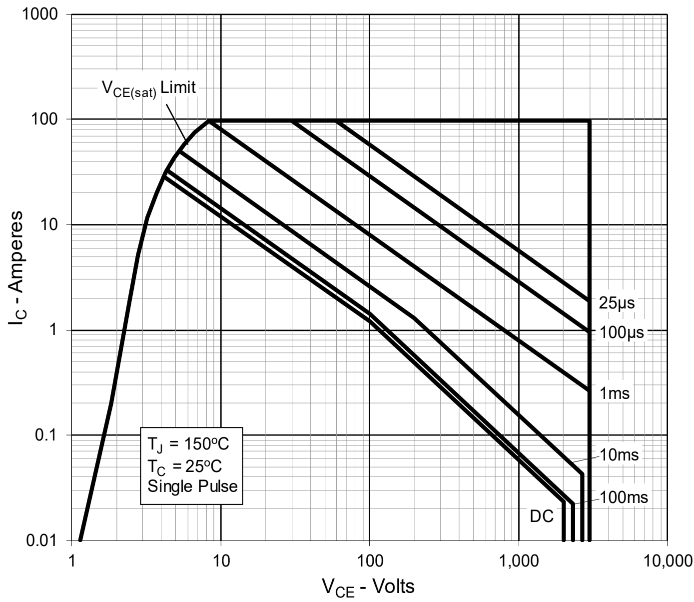

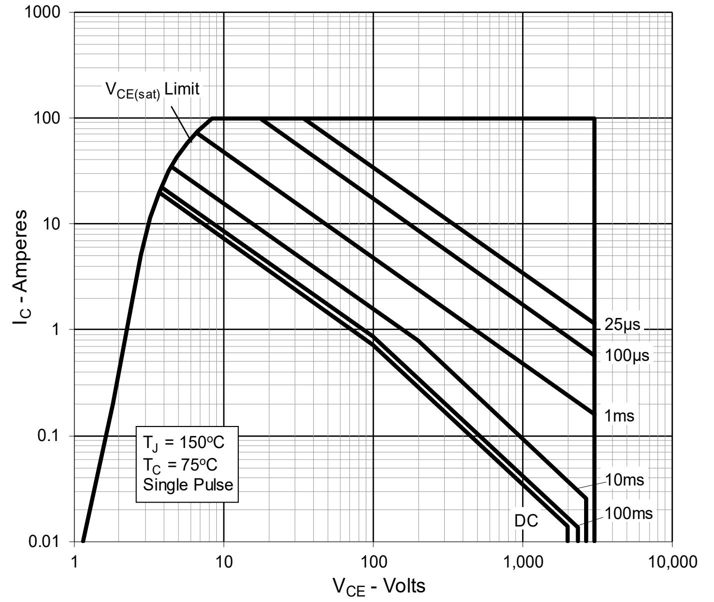

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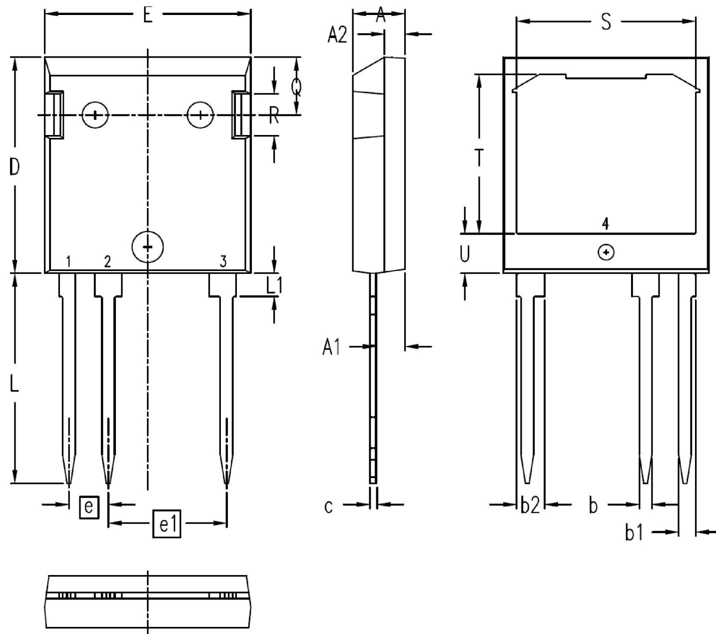
ISOPLUS i4-Pak Outline



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.193	.201	4.90	5.10
A1	.106	.114	2.70	2.90
A2	.075	.083	1.90	2.10
b	.047	.055	1.20	1.40
b1	.061	.069	1.55	1.75
b2	.087	.094	2.20	2.40
c	.020	.029	0.51	0.74
D	.819	.846	20.80	21.50
E	.768	.799	19.50	20.30
e	.150 BSC		3.81 BSC	
e1	.450 BSC		11.43 BSC	
L	.780	.838	19.80	21.30
L1	.083	.094	2.10	2.40
Q	.213	.236	5.40	6.00
R	.157	.169	4.00	4.30
S	.673	.685	17.10	17.40
T	.602	.614	15.30	15.60
U	.142	.154	3.60	3.90

1 = Gate
2 = Emitter
3,4 = Colector

IXYS
A Littelfuse Technology

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